

ULTRA FORCE™

UP TO 96% EFFICIENT COMMERCIAL GAS WATER HEATERS



The Ultra Force™ SUF product line is the most efficient State commercial water heater line ever built. With a storage tank of up to 130 gallons, high BTU input and up to 96% thermal efficiency, these models deliver more hot water for every energy dollar. A single Ultra Force unit is an ideal energy-saving choice for restaurants and other mid-sized commercial applications. For larger demands, up to four SUF130 400 models can be manifolded together, offering up to 520 gallons of storage and 1.6 million BTU input.

Down-Fired Low-NOx Powered-Burner Design

- Top-mounted down-fired burner ensures optimum combustion efficiency

Fully Submerged, Spiral-Shaped Condensing Heat Exchanger

- Spiral shape of the coils keeps hot gases swirling along the walls of the tank
- Spiral design prevents scale and sediment from forming on surface of heat exchanger

Standard Power-Vent or Power Direct-Vent Flexibility

- Vertical or sidewall power venting
- Vertical or sidewall sealed-combustion power direct-venting draws all combustion makeup air from outside the building
- Vents using inexpensive PVC, ABS or CPVC pipe
- Air intake and vent runs can be up to 120 equivalent feet depending on model and vent diameter

All Controls Including Gas Valve and Combustion Air Blower Located on Top

- Provides easy access during installation and service
- Protects against high water damage
- Control cover requires less than 2" of ceiling clearance

Space-Saving Design, with Zero Clearance to Combustibles

- Approved for installation on combustible flooring

Advanced Electronic Controls

- Microprocessor controls ignition and thermostat, with adjustment of water temperature from 100° F to 180° F
- LCD display shows all operating settings and failure modes in plain English for ease of service

Powered Anodes (Standard on All Models)

- Provide superior long-lasting tank protection
- Able to protect tank in varying water conditions

Optional ASME Tank Construction

(Standard on 300 & 400 models)

Maximum Hydrostatic Working Pressure: 160 psi

Factory-Installed Temperature and Pressure Relief Valve

For more information on Ultra Force™ contact:

State Water Heaters,
500 Tennessee Waltz Parkway
Ashland City, TN 37015
800-365-0024 Toll-free USA
www.statewaterheaters.com

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Other Ultra Force™ Features:

Commercial Grade Glass-Lined Tank and Heat Exchanger for Long-Term Protection Against Corrosion

- Heat exchanger glass-lined on both water and vent sides to protect against corrosive flue gases and condensate

Handhole Cleanout

- For easy inspection and cleaning

Meets ASHRAE/IES 90.1-Current Standard Requirements

- Also meets SCAQMD low-NOx Rule 1146.2
- Design-certified by CSA International, according to ANSZ21.10 storage-type water heater standards
- Design-certified by Underwriters Laboratories Sanitation to NSF Standard 5 for 180°F (62°C) water

Three-Year Limited Tank Warranty

- For complete warranty information, consult written warranty shipped with water heater or contact State Water Heaters

SUF 60 120NE - SUF 100 250NE Models



ASME
(OPTIONAL)



SUF 130 300NEA - SUF 130 400NEA Models

ASME



RECOVERY CAPACITY

					U.S. Gallons/Hr and Litres/Hr at TEMPERATURE RISE INDICATED													
MODEL	TYPE OF GAS	INPUT		Thermal Efficiency	Approx. Capacity	F°	30 F°	40 F°	50 F°	60 F°	70 F°	80 F°	90 F°	100 F°	110 F°	120 F°	130 F°	140 F°
		BTUH	KW			C°	17 C°	22 C°	28 C°	33 C°	39 C°	44 C°	50 C°	56 C°	61 C°	67 C°	72 C°	78 C°
SUF 60 120NE	NATURAL/PROPANE	120,000	35	95%	60 U.S. Gals.	GPH	461	345	276	230	197	173	154	138	126	115	106	99
					227 Litres	LPH	1744	1308	1046	872	747	654	581	523	476	436	402	374
SUF 100 150NE	NATURAL/PROPANE	150,000	44	95%	100 U.S. Gals.	GPH	576	432	345	288	247	216	192	173	157	144	133	123
					379 Litres	LPH	2179	1635	1308	1090	934	817	726	654	594	545	503	467
SUF 100 199NE	NATURAL/PROPANE	199,900	58	95%	100 U.S. Gals.	GPH	767	575	460	384	329	288	256	230	209	192	177	164
					379 Litres	LPH	2904	2178	1743	1452	1245	1089	968	871	792	726	670	622
SUF 100 250NE	NATURAL/PROPANE	250,000	73	95%	100 U.S. Gals.	GPH	960	720	576	480	411	360	320	276	262	240	221	206
					379 Litres	LPH	3632	2724	2179	1816	1557	1362	1211	1044	991	908	838	778
SUF 130 300NEA	NATURAL/PROPANE	300,000	88	96%	130 U.S. Gals.	GPH	1164	873	699	582	499	436	388	349	318	291	269	250
					492 Litres	LPH	4406	3304	2644	2203	1888	1652	1469	1322	1201	1102	1017	945
SUF 130 400NEA	NATURAL/PROPANE	399,900	117	96%	130 U.S. Gals.	GPH	1552	1164	931	776	665	582	517	465	423	388	359	332
					492 Litres	LPH	5875	4406	3525	2938	2518	2203	1958	1750	1602	1469	1356	1259

Recovery capacities are based on heater performance at 95% and 96% thermal efficiency.

Add "A" to model number when ordering ASME. Optional on SUF 60 120NE - SUF 100 250NE Models. Standard on SUF 130 300NEA and SUF 130 400NEA Models.

Maximum gas supply pressure for 120 - 250: 10.5" w.c. natural gas 14" w.c. propane. Maximum gas supply pressure for 300-400 10" w.c. natural gas 13" w.c. propane.

Manifold pressure: 4" w.c. natural gas 10" w.c. propane. Electrical requirements: 120 VAC, Blower 2.2 Amps FL, Igniter 4.0 Amps

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DIMENSIONS AND SHIPPING WEIGHTS

MODEL	DIMENSIONS							SHIP WEIGHT STD	SHIP WEIGHT ASME
	A	B	C	D	E	F	G		
	INCHES/CM	INCHES/CM	INCHES/CM	INCHES/CM	INCHES/CM	INCHES/CM	INCHES/CM		
SUF 60 120NE	55.5/141	44.5/113	35/88.9	27.75/70.5	7.5/19.1	6.3/16	47/119.4	460Lbs/208.7Kg	490Lbs/222.2Kg
SUF 100 150NE	75.5/191.8	64.5/163.8	55.5/141	27.75/70.5	7.5/19.1	6.3/16	72/182.9	555Lbs/251.7Kg	595Lbs/269.9Kg
SUF 199 250NE	75.5/191.8	64.5/163.8	55.5/141	27.75/70.5	7.5/19.1	6.3/16	72/182.9	555Lbs/251.7Kg	595Lbs/269.9Kg
SUF 300 400NEA	75.5/191.8	64.5/163.8	50.77/129	33.12/84.1	8/20.3	4.86/12.3	67.25/170.8	N/A	940Lbs/426.4 Kg

Water Connections: 1-1/2"

INSTALLATION CLEARANCES

Sides	0"
Front	0"
Rear	0"
Top	1.5"
To Combustibles*	0"

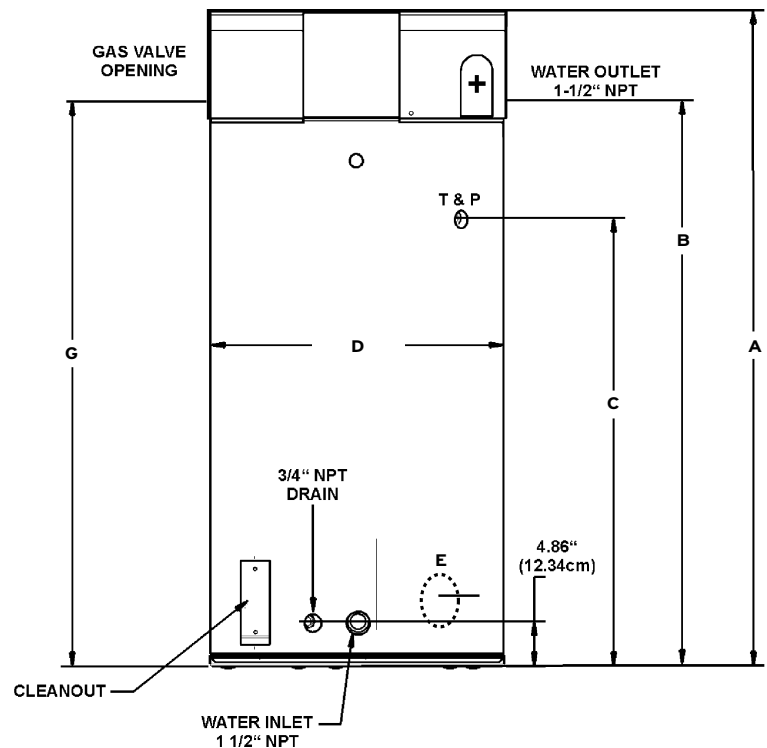
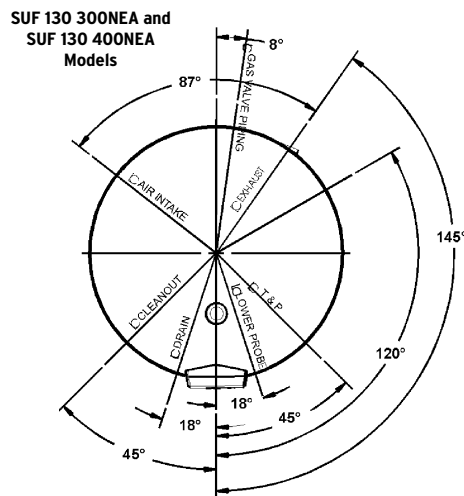
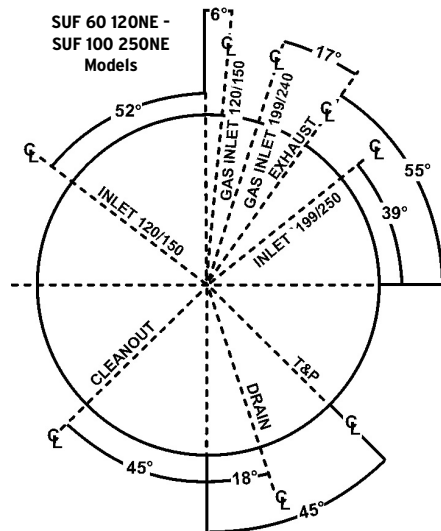
* Approved for combustible floors

GAS VALVE PIPING

SUF 60 120NE	1/2" NPT
SUF 100 150NE	3/4" NPT
SUF 100 199NE	1/2" NPT
SUF 100 250NE	1/2" NPT
SUF 130 300NEA	1 1/4" NPT
SUF 130 400NEA	1 1/4" NPT

MAXIMUM EQUIVALENT VENT LENGTH:

SUF 60 120NE - SUF 100 250NE	using 3" pipe: 50 ft.
SUF 60 120NE - SUF 100 250NE	using 4" pipe: 120 ft.
SUF 130 300 - 400NEA	using 3" pipe: not applicable
SUF 130 300 - 400NEA	using 4" pipe: 70 ft.



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INSTALLATION CONSIDERATIONS

1. Condensate Drain – This is a fully condensing water heater and should be located near a drain to permit proper disposal of condensate.
2. Vent Termination – Exhaust gases of this water heater are less than 140° F. In cold climates, water vapor in flue gases will condense into a cloud of vapor where the vent exits the building. This vapor can gradually discolor exterior building surfaces. Vent termination should be located where this vapor cloud and potential discoloration are not a concern. Locating vent termination 6" or more from the wall helps vapor from being trapped along a building's face. To avoid this problem, the vent can be terminated on the roof. Always locate vent termination above the maximum snowline, and do not locate vent termination above a walkway.
3. Air Intake – In cold climates, air intake should be located at least three feet from the vent termination of the water heater and any other appliance vents that discharge moisture-laden air (such as clothes dryers). This will help prevent freeze-over of the intake screen required to prevent foreign objects from entering the intake pipe. Air intake should be located above the maximum snowline.
4. Blockage Sensors – The water heater is equipped with sensors to shut it down if blockage of vent or air intake occurs. The heater's diagnostic panel will alert service technicians to this problem.
5. Noise – Vent terminal should be located away from bedroom windows or other areas where blower noise will be objectionable. Avoid venting into corners or confined areas, which will amplify sound. Anchoring intake or vent pipe walls or ceilings can cause noise to be transmitted to living areas, and isolation mounts should be used where anchoring is required.
6. Optional Concentric Vent Kit
SUF 60 120NE - SUF 130 300NEA vent kit p/n 9003910105
SUF 130 400NEA vent kit p/n 9006144005

SUGGESTED SPECIFICATION

Gas water heater(s) shall be State Ultra Force™ Model _____, with a storage capacity of _____ gallons, an input rating of _____ BTU/hr., a recovery rating of _____ GPH at 100° F temperature rise, and thermal efficiency of ____%. Heater(s) shall meet ASHRAE/IES 90.1- Current standard requirements for thermal efficiency and standby loss, and meet SCAQMD R1146.2 low-NO_x requirements. In addition, heater(s) shall: 1) Have a power burner that requires no special calibrations on start-up. 2) Have seamless glass-lined tank construction in which the glass coating is applied to the water side surfaces of the tank after the tank has been assembled and welded. 3) Have a condensing flue coil that is coated on the flue gas side with acid-resistant glass lining designed for use in condensing heaters. 4) Have a control system that includes an integrated solid-state temperature and ignition control device with integral diagnostics, LCD fault display capability and a digital display of temperature settings. 5) Be equipped with an ASME rated temperature and pressure relief valve. 6) Be approved for 0" clearance to combustibles. 7) Heater shall be supplied with maintenance-free powered anode.

120K-250K BTU Input:

For Standard Venting: Water heater(s) shall be suitable for venting using (3" or 4") diameter PVC pipe for a maximum total equivalent distance of (50' or 120').

For Sealed Combustion Direct-Venting: The heater(s) shall be suitable for sealed combustion direct-venting using (3" or 4") diameter PVC pipe for separate air intake and vent runs, with a maximum total equivalent distance of (50' or 120') for each run.

300K-400K BTU Input:

For Standard Venting: Water heater(s) shall be suitable for venting using 4" diameter PVC pipe for a maximum total equivalent distance of 70'.

For Sealed Combustion Direct-Venting: The heater(s) shall be suitable for sealed combustion direct-venting using 4" diameter PVC pipe for separate air intake and vent runs, with a maximum total equivalent distance of 70' for each run.

For complete information on limited warranties, consult written warranty or contact the State Customer Care Center at 1-800-365-0024.

State Industries, Inc., reserves the right to make product changes or improvements without prior notice.

For more information on Ultra Force™, contact:

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